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AGILENT TECHNOLOGIES
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Intellectual Property Administration
P. O. Box 58043
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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION
ATTORNEY DOCKET NO. 10961260-2

"Express Mail" label no. EL 525 376 198 US

Date of Deposit Sept. 13, 2000

Anticipated Classification of this application:

Class _____ Subclass _____

Prior application:

Examiner: D. Owens

Art Unit: 2811

I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

By Nelia T. de Guzman

Typed Name: Nelia T. de Guzman

Box CPA
ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

REQUEST FOR A CONTINUED PROSECUTION APPLICATION (CPA) 37 CFR 1.53(d)

Sir:

This is a request for a filing under the continuing application procedure, 37 CFR 1.53(d), for a

☒ continuation

☐ divisional

Prior Application

Application Serial No. 09/217,740 filed Dec. 21, 1998

Title (as originally filed) Local Oxidation of a Sidewall Sealed Shallow Trench for Providing Isolation Between Devices of a Substrate

Title (as last amended) _____

Name of applicant(s) Min Cao et al

☒ The prior application is hereby abandoned.

☒ The issue fee in the prior application has not been paid.

☒ Please use all the contents of the prior application file wrapper, including the drawings and entered amendments, as the basic papers for the new application.

Foreign Priority - 35 USC 119

☐ Foreign priority under 35 U.S.C. 119 has been claimed in prior application Serial No. _____ filed on _____ in _____

☐ The certified copy has been filed in prior application Serial No. _____ filed _____

☐ A separate paper claiming direct priority to a foreign application is enclosed herewith. A certified copy of the foreign application will be provided in due course.

Petition for Extension of Time in Prior Application

☐ A petition for extension of time is enclosed herewith.

09/18/2000 AGOITOM 00000068 501078 09217740

01 FC:131 690.00 CH

Assignment

- (X) The prior application is assigned to Agilent Technologies.
() The prior application is assigned to Agilent Technologies and _____
() The prior application is assigned to _____

Inventorship Statement

- () Delete the following named individuals as inventors in this application in accordance with 37 CFR 1.62(a) as a result of a change in the claimed subject matter:

Declaration and Power of Attorney

- (X) The Power of Attorney in the prior application is to:

Customer Number **022878**

Place Customer
Number Bar Code
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- () The power appears in the original papers in the prior application.
() The power does not appear in the original papers, but was filed on _____

- () Recognize as Associate Attorney or Agent _____

Registration No. _____

- () Authorization is hereby granted by signature below of the Attorney or Agent of record.
() The Associate Attorney or Agent shall not have the authority to appoint other Attorneys or Agents.

Communications

- (X) Address all future communications to:

AGILENT TECHNOLOGIES
Legal Department, 51UPD
Intellectual Property Administration
P.O. Box 58043
Santa Clara, California 95052-8043

Direct telephone calls to:
Timothy Rex Croll
(650) 485-5511

Waiver of Secrecy

It is understood that secrecy under 35 USC 122 is hereby waived to the extent that if information or access is available to any one of the applications in the file wrapper of a CPA application, be it either this application or a prior application in the same file wrapper, the PTO may provide similar information or access to all the other applications in the same file wrapper.

Other Amendments

- (X) Before calculating the filing fee, amend the prior application as follows:

- () Cancel the following claims _____
() Enter the enclosed Preliminary Amendment.

(X) Enter the Amendment(s) under 37 CFR 1.116 dated August 8, 2000

that was unentered in the Prior Application. A copy of the Amendment(s) is (are) enclosed.

F Calculation

(X) The filing fee is calculated below for (X) Utility () Design


CLAIMS AS FILED BY OTHER THAN A SMALL ENTITY					
(1) FOR	(2) NUMBER FILED		(3) NUMBER EXTRA	(4) RATE	(5) TOTALS
TOTAL CLAIMS	5	20	0	X \$18	\$ 0
INDEPENDENT CLAIMS	2	3	0	X \$78	\$ 0
ANY MULTIPLE DEPENDENT CLAIMS	0			\$260	\$ 0
BASIC FEE: Design (\$310.00); Utility (\$690.00)					\$ 690
TOTAL FILING FEE					\$ 690
EXTENSION FEE	1ST MONTH \$110.00	2ND MONTH \$380.00	3RD MONTH \$870.00	4TH MONTH \$1360.00	\$ 0
TOTAL CHARGES TO DEPOSIT ACCOUNT					\$ 690

Charge \$ 690 to Deposit Account 50-1078. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 50-1078 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 50-1078 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this transmittal letter is enclosed.

Respectfully submitted,

Min Cao et al

By



Timothy Rex Croll

Attorney/Agent for Applicant(s)

Reg. No. 36,771

Date: Sept. 13, 2000

Telephone No.: (650) 485-4881



COPY of Paper #1
**AMENDMENT UNDER 37 C.F.R. § 1.116
EXPEDITED PROCEDURE
EXAMINING GROUP 2811**

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231, on August 8, 2000.

By Nelia T. de Guzman Date: August 8, 2000
Nelia T. de Guzman

**PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): **Min Cao, et al.**

Group Art Unit: **2811**

Serial No.: **09/217,740**

Examiner: **Owens, D.**

Filed: **December 21, 1998**

Title: **Local Oxidation of a Sidewall Sealed Shallow Trench for Providing Isolation Between Devices of a Substrate**

Atty Docket: **10961260-1**

AMENDMENT AFTER FINAL ACTION UNDER 37 C.F.R. 1.116

Box AF
Hon. Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action mailed **July 20, 2000**, which was made final, please reconsider the above-identified application based on the following amendment after final action.

IN THE SPECIFICATION:

Page 3, line 8, please delete the word --an-- and insert the word "a" between "is" and "substrate".

Page 3, line 13, please insert the word "a" between "includes" and "semiconductor".

Page 4, line 7, please insert the word "a" between "includes" and "method".

Page 4, line 13, please delete the word --the-- between "The" and "step".

Page 6, line 22, please delete the word --an-- and insert the word "a" between "includes" and "deep".

Page 7, line 8, please delete the word --allow-- and insert the word "allows" between "wall" and "formation".

Page 8, line 15, please delete the label --304-- and insert the label "302" after "n-doped active device region".

IN THE CLAIMS

As indicated below, please **AMEND** claims 1 and 5.

1. (Twice amended) A semiconductor isolation structure comprising:
 - a substrate, the substrate comprising a surface;
 - a first device and a second device formed within the substrate;
 - an isolation region formed within the substrate between the first device and the second device, the isolation region comprising:
 - a deep region which extends into the substrate, the deep region comprising a deep region cross-sectional area;
 - a shallow region which extends to the surface of the substrate, the shallow region comprising:
 - a protective outer wall adjacent to the substrate;
 - an inner sealing wall located exclusively within the shallow region and adjacent to the protective outer wall: and

the shallow region having a shallow region cross-sectional area;
wherein

the deep region cross-sectional area is greater than the shallow region
cross-sectional area.

5. (Twice amended) A semiconductor isolation structure comprising:
- a substrate, the substrate comprising a surface;
 - a first device and a second device formed within the substrate;
 - an isolation region formed within the substrate between the first device and the second device, the isolation region comprising:
 - a deep region which extends into the substrate, the deep region comprising an oxide;
 - a shallow region which extend to the surface of the substrate, the shallow region comprising:
 - a protective outer wall adjacent to the substrate,
 - an inner sealing wall located exclusively within the shallow region and adjacent to the protective outer wall.

REMARKS

Claims 1, 2 and 4-6 are pending. Claim 3 has been previously canceled. The Specification has been amended to correct some egregious typographical errors. Claims 1 and 5 have also been amended. No new matter was added when making the amendments to the specification or claims.

Rejected Claims - 35 U.S.C. 112, first paragraph

The Office Action stated that Claims 1, 2 and 4-6 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in

such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention.

The Office Action stated that Claim 1 recites the limitation, "an inner sealing wall located within the protective outer wall . . ." in line 11 of the claim; the specification does not disclose an inner wall located within the protective outer wall; the disclosure only discloses an inner sealing wall adjacent the protective outer wall. The Office Action further stated that Claim 5 recites the same limitation in line 11 of the claim

Applicants have responsively amended Claims 1 and 5 to include the feature that the inner sealing wall is adjacent to the protective outer wall (rather than within it). Dependent Claims 2, 4 and 6-7 either depend from Claim 1 or Claim 5, and therefore incorporate this amendment by reference.

Rejections - 35 U.S.C. 103(a)

The Office Action stated that Claims 1, 2 and 4-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami, US patent No. 4,551,743 in view of HO et al., US patent No. 5,747,866. With respect to arguments advanced by Applicants in the previous amendment and response, the Office Action stated that they are not persuasive. With respect to the argument that there is no motivation to combine Ho and Murakami, the Office Action stated that Ho and Murakami both teach trench isolation structures, and that Ho teaches that including a nitride layer over the oxide liner can reduce stress during fabrication of a trench isolation structure. With respect to the argument that the references fail to show certain features of applicants' invention, the Office Action noted that the features upon which the Applicants rely (i.e., the requirement of the inner sealing wall being formed in a shallow region exclusively) are not recited in the claim(s).

Applicants have herein responsively amended claims 1 and 5 to include the feature that the inner sealing wall is formed within the shallow region exclusively. Dependent


Claims 2, 4 and 6-7 either depend from Claim 1 or Claim 5, and incorporate this amendment by reference. Therefore, for the reasons set forth in the prior amendment and response, these claims are patentable over the prior art of record. Moreover, Applicants submit that the addition of this feature to the claims would not require further search or consideration because the Office Action indicated that the Examiner fully considered these arguments.

Conclusion

All pending claims are now in condition for allowance. A Notice of Allowance is earnestly solicited. The Examiner is also encouraged to contact the undersigned attorney for prompt resolution of any outstanding issues which may impede allowance of this application.

Respectfully submitted,

Min Cao, et al.

By 

Timothy Rex Croll
Reg. No. 36,771

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Dated: August 8, 2000

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